

PITCH POCKET

FIELD OF THE INVENTION

The present invention relates generally to the field of pitch pockets for sealing a physical penetration in a waterproof membrane covering a roof substrate, and more particularly to a pitch pocket that is made out of a single semi-rigid unit.

BACKGROUND OF THE INVENTION

Pitch pockets are typically known from prior art for sealing physical penetrations in a waterproof membrane covering a roof substrate.

In a typical low slope, a provision must be made for sealing penetrations of the roof by vent pipes, support straps, conduits, guy anchors and similar elements. Generally, a pitch pocket which surrounds the penetrating element is used and a sealant, otherwise known as «pitch», is poured into the pitch pocket, around the penetrating element to seal off the penetration.

An example of a typical pitch pocket is proposed in U.S. Patent No 5,493,827 (*Georgeau et al.*). The pitch pocket there proposed includes a preformed curb defining a pocket. An adhesive is applied to the base surface to secure the curb to the roof about a roof penetration. A pourable sealant is cast within the pocket to form a solid seal with the curb around the penetration. The curb is formed from at least two curb elements, each of which define opposed, joint surfaces. The pitch pocket needs to be formed of at least two curb elements in order to be usable around a penetrating element where it is impractical to slip the pitch pocket onto the element.

Adhesive is also applied to the joint surfaces to join the elements to form the curb. The curb elements are rigid, usually preformed or cast from a lightweight, polymer-modified portland cement. A pourable sealant is poured into the cavity until it is level with the top of the pocket. The liquid sealant cures to form a solid seal around the roof penetration.

One of the main drawbacks remaining with the use of a pitch pocket known from prior art is that the installation is time consuming and necessitates a lot of manipulation and assembly of the different constituting elements. The process is thus labor intensive. Furthermore, the installation of these pockets under field conditions has caused errors in workmanship and improper installations, leading to failure of the seal formed by the sealant contained in the cavity of the pitch pocket. Failure of the seal formed by the sealant contained between the joint surfaces of the elements forming the curb has also been reported.

There is therefore a need for a pitch pocket and an installation method which simplifies and accelerate field application, which provides for a more reliable waterproof seal between a roof membrane and physical penetration therein and for a pitch pocket that would be easily installed around a penetration where it is impractical to slip the pitch pocket onto the penetrating element.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a pitch pocket and a method that satisfie the above mentioned needs.

Accordingly, there is provided a pitch pocket for sealing a physical penetration of a roof, said pitch pocket comprising :

- a curb having an inner peripheral surface and an outer peripheral surface, the inner peripheral surface defining an opening for the physical penetration to pass through; said curb further defining a base surface;
- an adhesive applied to at least a portion of the base surface and adapted to secure the pitch pocket to the roof; and
- a sealant cast within the opening of said curb and forming a solid seal around the physical penetration;

characterized in that the curb is formed out of a single semi-rigid unit and is provided with a split for allowing the installation of the curb around the physical penetration on the roof.

- 5 In a preferred form, the pitch pocket according to the present invention comprises a curb that has an annular shape.

Also in a preferred form, the pitch pocket according to the present invention comprises on its inner peripheral surface at least one peripheral groove for
10 catching any liquid infiltrated between the solid seal located in the opening and the inner peripheral surface of the curb. More preferably, the peripheral groove has an acute angle profile with an apex, the apex pointing downwardly.

In further aspects of the invention, the base surface comprises at least one base
15 groove for receiving the adhesive to secure the pitch pocket to the roof. More preferably, the adhesive is preinstalled into the at least one base groove of the curb and it is provided with a peel-off membrane to be peeled-off prior to the installation of the curb to the roof. Even more preferably, the at least one base groove has a rectangular profile.

20

In further aspects of the invention, the curb is made out of rubber from recycled tires.

According to the present invention, there is also provided a method for sealing a
25 physical penetration of a roof, comprising the steps of :

- spreading two opposed ends of said curb formed by said split, thus opening the curb;
- placing said opened curb around the penetration;
- closing said curb by applying an adhesive to join said two opposed
30 ends together;
- securing said curb to the roof by applying adhesive to said at least one portion of said base surface of the curb;

- preparing said sealant;
- casting within the opening of said curb said sealant for forming a solid seal around the physical penetration;
- allowing the sealant to cure and to seal the physical penetration.

5

Preferably, the method for sealing a physical penetration according to the present invention comprises prior to the step of securing said curb to the roof, the additional step of peeling off a peel-off membrane provided to a preinstalled adhesive into the at least one base groove of said curb.

10

A pitch pocket in accordance with the present invention secures and waterproofs physical penetrations through roofing. The pitch pocket is easier and faster to install because it is made out of a single unit that can be opened to surround the physical penetration, including one where it would be impractical to slip the pitch pocket onto the penetrating element.

15

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects and advantages of the invention will become apparent upon reading the detailed description and upon referring to the drawings in which :

20

Figures 1 is a perspective sectional view of a pitch pocket according to the present invention showing a curb installed around a pipe going through a roof and filled with sealant;

25

Figure 2 is a front perspective view of the curb in figure 1, showing the curb in a closed position;

Figure 3 is a front perspective view of the curb in figures 1 and 2, showing the curb in an opened position;

30

Figure 4 is a bottom plan view of the curb in figures 1, 2 and 3;

Figure 5 is a side cut-section view of the pitch pocket of figure 1.

While the invention will be described in conjunction with an example embodiment,
5 it will be understood that it is not intended to limit the scope of the invention to
such an embodiment. On the contrary, it is intended to cover all alternatives,
modifications and equivalents as may be included as defined by the appended
claims.

DESCRIPTION OF A PREFERRED EMBODIMENT

10 In the following description, similar features in the drawings have been given
similar reference numerals and in order to lighten the figures, some elements are
not referred to in some figures if they were already identified in a preceding figure.

15 A preferred embodiment of a pitch pocket in accordance with the present
invention is illustrated in Figures 1 to 5 and is generally designated by the
numeral 1. Pitch pocket 1 is used to seal a physical penetration 2 going through a
roof 6, such as a pipe, a vent or an electrical conduit. It includes a curb 3 with an
opening 16, and a pourable sealant 4. In a presently preferred form, curb 3 is
20 defined by an annular shaped single unit having a split 5. The split 5 is preferably
a straight through cut that lies in a plane that is preferably not radial with respect
to the center 17 of the opening 16 of the curb 3. The split 5 further defines two
opposed ends 13 in an abutting relationship, as shown in Figures 2 and 3. The
two opposed ends 13 are joined by an adhesive which is applied to their
25 respective surfaces 18 so as to seal the curb 3 around the physical penetration 2.

As can best be seen in Figures 1, 4 and 5, the curb 3 has an under surface or
base surface 14 containing two base grooves 7 and 15, each base groove 7 or 15
having a circular path which is centered with respect to the center 17 of the
30 opening 16 of the annular shaped curb 3. These grooves 7 and 15, in the
presently preferred form, have a rectangular profile and are provided for receiving

an adhesive 19 in order to secure the curb 3 to the roof 6. Although not shown clearly on any of the Figures, in another preferred form the adhesive may be preinstalled in the base grooves 7 and 15 and provided with a peel-off membrane to be peeled-off prior to the securing of the curb 3 on the roof 6.

5

When the opposed ends 13 are abutted and sealed together, the curb 3 defines a pitch pocket 1 for receiving sealant 4. The curb 3 has an inner peripheral surface 11, which defines the interior wall of the pitch pocket 1 and which is in contact with the sealant 4. Since a small clearance 20 may appear between the sealant 4 and the inner peripheral surface 11 once the sealant 4 has cured as a solid seal and set permanently, two peripheral grooves 8 are thus provided for collecting any liquid, generally rainwater, that could infiltrate the clearance 20.

In the presently preferred form, the inner peripheral surface 11 defines a generally cylindrical shape and the two peripheral grooves 8 are there positioned one above the other. The two peripheral grooves 8 define a saw-tooth profile as can be best seen in Figures 1, 3 and 5. In the presently preferred form, each of the two peripheral grooves 8 has an acute angle profile which is the result of one horizontal edge 21 and an oblique edge 22 pointing downwardly, thus forming an apex 23. The apex 23 of the acute angle points downwardly. In three dimensions, each of the peripheral grooves 8 has the shape of a truncated cone. The two peripheral grooves 8, in use, are filled with sealant 4.

As can best be seen in Figures 1, 2 and 5, the curb 3 has an outer peripheral surface 9 that meets internally with the inner peripheral surface 11 to form an upper edge 12, which has a circular shape centered with respect to the center 17 of the curb 3. The outer peripheral surface 9, in the presently preferred form, has a profile that is the result of a first straight edge 24 downwardly slanted from the upper edge 12 towards the exterior of the annular shape curb 3, and a second straight edge 25 joined to the first straight edge 24 by an arc of circle 26 such that the second straight edge 25 is almost vertical. The outer peripheral surface 9 meets with the base surface 14 to form a lower edge 10. With an outer peripheral

surface 9 of a generally convex form, going downwardly from the upper edge 12 to the lower edge 10, away from the pitch pocket 1, rainwater is allowed to evacuate away from the physical penetration 2.

- 5 In the presently preferred form, the curb 3 is made out of rubber from recycled tires such that it is water-resistant, waterproof and more important, it is semi-rigid, thus flexible enough so that the curb 3 may be opened through the split 5 and the two opposed ends 13 may be spread apart enough to provide a space for allowing the curb 3 to be installed around the physical penetration 2 without
10 having to slip the curb 3 on the penetration 2, as can best be seen in Figure 3.

A typical installation of the present invention is illustrated in Figures 1 and 5. As shown, the pitch pocket 1 is installed on a roof 6 which contains a waterproof membrane 27. Any physical penetration will extend through the roof 6 and thus
15 through the waterproof membrane 27. The waterproof membrane 27 has to be pierced to allow the physical penetration 2 to pass through the roof 6. To assure a re-established waterproofing of the roof 6, a pitch pocket 1 according to the present invention is installed. As can best be seen in Figure 3, one begins by taking the curb 3 and spreading apart the two opposed ends 13 formed by the
20 split 5 such as to install the curb 3 around the physical penetration 2. The two opposed ends 13 are then abutted one on the other after an adhesive has been previously applied to their respective surfaces 18 to join them, thus creating the annular shaped curb 3 around the physical penetration 2.

- 25 An adhesive 19 is then applied to the base grooves 7 and 15 of the base surface 14 so as to secure the curb 3 to the roof 6. In another preferred form, the base grooves 7 and 15 are already provided with a pre-installed adhesive having a peel-off membrane which is to be peeled-off prior to exposing the adhesive and to secure the curb 3 to the roof 6. Furthermore, the pre-installed adhesive reduces
30 the time required to install the pitch pocket 1 on the roof 6, around the physical penetration 2. Once the curb 3 is secured and installed around the penetration 2, the sealant 4 may be prepared. The pitch pocket 1 is then filled with sealant 4 up

to the upper edge 12 of the curb 3 and the sealant 4 is left to cure so as to form a solid seal around the physical penetration 2.

5 Due to its simplicity and to its unitary design, the present invention reduces the time required for each installation and ensures a more efficient sealing of the physical penetrations going through a roof. It also minimizes errors in workmanship.

10 In view of the above description, those of ordinary skill in the art may envision various modifications, which would not depart from the inventive concept disclosed herein. Although a preferred embodiment of the present invention has been described in detail herein and illustrated in the accompanying drawings, it is to be understood that the invention is not limited to this precise embodiment and that various changes and modifications may be effected therein without departing
15 from the scope or spirit of the present invention.